

Penaeid Prawn Culture at Valappu Village Near Cochin—An Experience

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ABSTRACT

The paper presents a success story of a village welfare society consisting of Harijans of village vallapu in Kerala which was adopted under lab to land programme for transfer of technology on prawn culture. The members have not only adopted rice cum prawn culture on the reclaimed area but are also producing coconuts and vegetables on the raised bunds made for impounding the back water. The success of this experiment has generated considerable interest in the neighbourhood farmers to take up prawn culture in their field. This study shows that organized prawn culture can also be practiced in the Andamans.

One of the major programmes, designated as 'Lab-to-Land', taken up during the Golden Jubilee Year (1979) of the Indian Council of Agricultural Research was the transfer of proven technologies in agriculture, animal husbandry and fisheries to marginal and small farmers and landless labourers. Marine prawn culture was one of main technologies selected under the project by the Central Marine Fisheries Research Institute. Valappu is a small hamlet in Vypeen Island, Ernakulam District in the State of Kerala. The Island is separated from Cochin by the backwaters and is one of the busiest rural areas in the Central Kerala having varied occupation. The Island is well known for the traditional practice of brackishwater fish and prawn culture in the paddy fields. In these fields, a particular variety of paddy known as 'pokkali', which is resistant to certain amount of salinity (6-8 ppt) is cultivated during the south-west monsoon from July to October. After the harvest of

paddy in October and as the salinity of the backwaters increases with the cessation of the monsoon rains, the tidal water is let into the field along with the juveniles of fishes and prawns and their escape from the fields is prevented by the screens provided at the sluice-gates. The fishes and prawns thus trapped are allowed to grow in the impounded waters of the fields and are harvested every fortnight during the full moon and new moon periods. With the onset of monsoon, the fields are again used for paddy cultivation. This alternate culture of paddy and fishes/prawns is traditionally practised since hundreds of years.

Programme of work

As the farmer has no control over the entry of fishes and prawns and other organisms and since the practice does not involve any management of the quality of the water, or the well being of the stocked population, the produc-

tion and the unit value are found to be low due to lower quantity and quantity of the produce. In the lab-to-land programme, an improved technology entailing prepreparation of the field eradicating the undesirable organisms, stocking of the field with selected species of prawns and fishes that grow fast and fetch higher unit values, monitoring of the growth of the stocked population ensuring better supply of water and supplementary feed, and growing the stocked population for adequate time till they attain marketable size was advocated. For the transfer of this technology, 122 Harijan families of the Ajantha Maranantara Sahaya Fund (AMSF) at Valappu were selected. The AMSF is organised by the Harijan members of Valappu village and is a registered Welfare Society. As the name implies, it is primarily organised to financially assist the members in the event of death of any member of the families to perform the last rites. The source of revenue of the Society is essentially the membership fee, lease amount from the annual auction of a small water area used for prawn/fish culture and rental charges from coconut trees allowed for tapping. Besides, the Society possesses 3.4 ha of water logged land as a common property.

Bench Mark Survey

The Bench-mark survey carried out at the beginning of the programme showed that the Society in early 1979 included 505 members belonging to 100 families. Of these, 246 were male and 259 were females. The average family size of the members was 5, the persons above 30 years old formed the maximum and those in the age group of 14-18 years the minimum; 52% of the families were daily wage earners; 13% were self-employed. Male earners formed 72.5%, while the female earners 6.45%. The average daily income was Rs. 7.60 per family. More than

50% of the families availed of loans for meeting the needs such as for marriage, employment and for education of the children. The habit of saving was very low. Assets of families included land, generally less than 10 cents. Paddy and coconut were generally produced by the families. Similarly, poultry and production of eggs formed an important source of income. Rice and tapioca formed the staple food, a few were found to use wheat (Ali *et al.*, 1979).

Implementation of The programme

Through a series of discussions, the members of the Society were explained of the advantages and benefits of the improved technology of prawn culture selected for transfer and the prospects of bringing in the 3.4 ha of wet land possessed by the Society under prawn culture by the members themselves. Motivated by this, the Society showed keen interest to take up the programme. The selected members, who were later actually involved in the culture operation, were trained in different aspects like collection and identification of prawn seed from natural source, transportation of seed, stocking and culture, at the Krishi Vigyan Kendra for Mariculture at Narakkal. Simultaneously a part of the marshy land was developed into culture ponds with the involvement of members. Appropriate sluice gates fitted with screens were provided. After the prepreparation of the field, the shite prawn, *Penseus indicus* was selected for culture. Besides this, the tiger prawn; *P. monodon*, was also raised in some demonstrations. In poly-culture operations, grey mullet (*Mugil cephalus*), milkfish *Chanos chanos*) and pearlspot (*Etroplus suratensis*) were farmed. To develop an integrated farming system, the members were encouraged to plant coconut seedlings on the bunds of the ponds and also to grow vegetables during the season.

The entire development works relating to the conversion of wetland to culture fields, collection of seed, stocking, management of the culture, and harvesting were carried out by the members under the guidance and supervision of the scientists and technologists associated with the programme. Between 1979 and 1981, the Society developed 1.94 ha of the wetland out of the total area of 3.4 ha. 13 prawn/fish culture operations and two interim cultivation of paddy during 1980 and 1981 rainy seasons were carried out. Over 100 coconut seedlings were planted on the bunds and vegetables were grown seasonally for additional income.

With the above activities a revenue of Rs. 37,588.27 accrued to the society between February 1979 and June 1981. Prawn and fish culture realised Rs. 33,870.27; Vegetable cultivation Rs. 1,216.30 in 1979 and Rs. 1,252.60 in 1980. 'Pokkali' paddy cultivated as an interim crop during 1979 was not successful as it was common for the entire region. However, the paddy cultivated in 1981 monsoon, season yielded a record harvest of 2000 kg valued at Rs. 3000/- from an area of 0.6 ha. This yield was shared by the members of the Society. Income through vegetables raised in 1981 was Rs. 1,146.80. Towards prawn culture, the Society spent a sum of Rs. 10,702.02. The initial expenditure on the development of fields and for the first culture operation was met from the general fund of the Society, along with the critical inputs on seed, strengthening of bunds, provision of sluice gates, eradication of predators and undesirable organisms from the fields, feed and fertilisers, provided by the CMFRI. Subsequent expenditure on the development of land, and culture operation was met by re-investing the part of the amount realised by the harvest at every stage.

Feedback

The important factors for the success of the

programme have been the motivation afforded to take up improved methods of culture and the ready response evinced by the members of the Society. The continuous liaison by the Scientists involved in the programme in solving the problems encountered on various aspects of farming as well as of the Society also contributed significantly to the success of the programme. It is remarkable that the Society has sustained the interest not only through the lab-to-land programme period, but is continuing the same. The development of the land into culture fields has been slow for want of funds to undertake development work.

It is often asked how the gains of this venture percolate to the members. Part of the revenue accrued by the Society has been reinvested for the conversion of marshy land into culture fields stage by stage; for paying loans to the members on a low interest rate to meet their urgent needs of the families; and for providing assistance for the education of the children of members. Further, the project has generated employment for the members of the Society in pond development, seed collection, farm maintenance, harvest and watch and ward. The benefit of these employment has gone entirely to the members of the Society, and their families thereby generating additional income. The yield from coconuts planted on the bunds has further increased the income of the Society.

Demonstration value

One of the most significant and relevant aspect of this venture has been the impact it has made in the area in generating interest among the neighbouring farmers to take up prawn culture in their fields. On witnessing the success at Valappu, several farmers have approached the CMFRI for technical assis-

tance for developing prawn culture. Several of them have taken up prawn culture in small areas including canals in the coconut groves. The results of Valappu have set an example as to how a Harijan Society whose members are essentially daily wage earners, could develop a fallow marshy land into a viable prawn culture unit through adoption of scientific technologies. The programme of lab-to-land coupled with the training activities of the Krishi Vigyan Kendra or Mariculture have thus generated an upsurge of interest on the transformation of traditional practice into semi-intensive culture of prawns which is now spreading rapidly not only in the area, but also in the other parts of the country.

The potential for prawn culture in Andaman-Nicobar Islands has been discussed by Silas *et al* (1983). It has been indicated that the availability of large number of creeks and protected bays bordered by mangrove swamps and of the seed of cultivable prawn such as *Penaeus marguensis* and *Metapenaeus ensis*, could advantageously be utilised to develop extensive and/or semi-intensive culture of penaeid prawns. By providing proper motivation to the local persons, training and the critical inputs in the initial stages, it is envisaged that an organised culture could be developed in the Andamans.

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